



# **John Reich Journal**

Volume 26 / Issue 3

December 2016





The purpose of the John Reich Collectors Society (JRCS) is to encourage the study of numismatics, particularly United States gold and silver coins minted before the introduction of the Seated Liberty design, and to provide technical and educational information concerning such coins.

Annual dues .....\$25.00  
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The John Reich Journal is the official publication of the Society and is distributed to all members in good standing. Members are encouraged to submit any articles encouraging the study of numismatics and / or relating to early United States gold and silver coins to the editors. Especially needed are articles containing new information about die marriages, die states of published die marriages, attribution methods, collections, collectors, etc.

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Cover Photos: 1796 JR-7, second known specimen of this exceedingly rare die marriage discovered by NGC. The discovery coin is in low grade and damaged obliterating many of the design elements. This new discovery will allow numismatists access to all the attribution points for this die marriage.

Photo courtesy: NGC Photoproof™

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## The John Reich Collectors Society wants you!

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a ____ Flowing Hair Bust Half Dimes	h ____ Capped Bust Quarter Dollars
b ____ Draped Bust Half Dimes	i ____ Flowing Hair Bust Half Dollars
c ____ Capped Bust Half Dimes	j ____ Draped Bust Half Dollars
d ____ Draped Bust Small Eagle Dimes	k ____ Capped Bust Half Dollars
e ____ Draped Bust Heraldic Eagle Dimes	l ____ Flowing Hair Bust Dollars
f ____ Capped Bust Dimes	m ____ Draped Bust Dollars
g ____ Draped Bust Quarter Dollars	n ____ Gold Issues

I hereby apply for membership in JRCS. As required by the By-Laws of JRCS I agree to pay promptly all my debts or other obligations to JRCS or any of its members. I enclose a check or money order for \$25.00 payable to "John Reich Collectors Society" for my annual membership contribution, or \$625.00 for a life membership in the Society.

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Back issues of The John Reich Journal are still available to members for \$9.00 each postpaid.  
Visit <http://brycebooks.squarespace.com/storage/Lit-Periodicals-display-htm.htm>  
for a complete listing of the issues in stock.

# John Reich Journal

Official publication of the  
John Reich Collectors Society

Volume 26 / Issue 3

December 2016

Whole No. 80

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## Editor's Comments

This is the final edition of the journal for this year; hopefully the holidays will be joyous for you and your families. The annual FUN convention is just around the corner. The society will have a meeting there on Friday January, 4 at 9-10:30AM in room 124. David Finkelstein will be our featured speaker giving us yet another wonderful talk on his research into the workings of the early mint. I am looking forward to hearing his latest discoveries.

I will also be a speaker at the convention. On Thursday afternoon at 3:30 I will be giving my presentation, "Connections; Black Pepper, The Mountain That Eats Men, and John Reich" as part of the FUN educational presentations. I hope to see many of you at the convention.

Included in the envelope with your journal is your annual dues renewal notice. Please complete it and return it to Steve to continue your membership in the society. Also with the dues notice is the ballot for voting for the Jules Reiver Literary Award for this year. You may vote for up to three articles published in the journal over the last year to receive this prestigious award. You will also notice a single issue for your vote. We are asking the membership as a whole to vote as to whether we will allow the Newman Numismatic Portal to digitize our journal on their website. We will only allow for issues more than two years old to be included in the project with updates yearly. This is a Yes/No vote with the majority ruling. Please take the time to vote on both the Reiver award and the Newman Portal issue when you send in your renewal check.

Also, it is time for the Pre-Turban half dollar census. The information for submitting your census is found below. Please take the time to participate in this important census.

This brings the end to another year of the journal. I hope you all have received as much pleasure from these issues as I have had in bringing them to you. Please consider submitting something for next year's issues.

Happy Holidays!

### NOTICE

The Pre-Turban Half Dollar Census information is now being solicited for inclusion in the next Issue of the John Reich Journal. Please email your complete inventory listing (including ALL duplicates and die states) of your Pre-Turbs to:

Steve Herrman at [herrman102@aol.com](mailto:herrman102@aol.com)

Please Respond promptly to ensure inclusion of your collection in this Census.



## **1837 Reeded Edge Half - Double Struck**

### **By Jim Koenings**

The last time there was an article on Reeded Edge Half Dollars was in Volume 8, Issue 3 in June, 1994 when Jules Reiver reported a new marriage of Reeded Edge Half then designated as JR-22. So I decided maybe it is time to have another article for the Reeded Edge Half collectors.

In the May 15, 2016 Issue of the JR Newsletter, a photo of an 1809 Half Dollar Overstrike was shown. This coin turned out to be from the Russell J. Logan collection that was sold by Bowers and Merena in November, 2002 as Lot Number 2237. The title description was as follows: 1809 O-112. Rarity 5, Double Struck with 90 degree rotation between impressions. The price realized is listed as \$14,950.

A recent issue of Coin World announced the sale of a Double Struck Walking Liberty Half Dollar to be sold at the FUN summer show. It sold for \$32,900. After seeing these two articles, I did some research through Heritage Auction Archives and found the following 13 items listed under "Half Dollars Double Struck":

- (1) 1795 O-131, Flipover Double Struck, PCGS VF20, Lot 3869, 8-8-13, \$17,625
- (2) 1795 O-104, Obv Double Struck, PCGS F12, Lot 7354, 11-5-04, \$2,999
- (3) 1806 O-123, Double Struck, NCS VG details, Lot 1675, 7-31-08, \$23,000
- (4) 1811/10 O-101, Double Struck Date, Lot 5341, 7-27-94, \$412.50
- (5) 1823 O-107, Double Struck, PCGS AU55, Lot 3444, 6-5-13, \$1,645
- (6) 1825 O-107, Double Struck, ANACS AU55, Lot 7248, 11-22-02, \$402.50
- (7) 1827 O-125, Double Struck, PCGS Genuine, Lot 3150, 4-30-10, \$747.50
- (8) 1827 O-148, Double Struck, PCGS VF35, Lot 3174, 4-30-10, \$21,275
- (9) 1832 O-103, Double Struck, NGC XF40, Rev Rotation, Lot 1074, 4-16-08, \$1,725
- (10) 1836 O-101, Double Struck, PCGS F12, Lot 3342, 4-30-10, \$1,035
- (11) 1836 O-113, Double Struck, PCGS XF45, Lot 3357, 4-30-10, \$1,265
- (12) 1869 Proof Half, Double Struck
- (13) 1921 Half Dollar, ANACS MS61, 2-25-05, \$16,100

Note: Depending on how you do your search, you may find more modern day errors.

There were actually 14 halves listed. The 1823 O-107 had previously sold on 2-24-05 for \$977.50. A few of these coins were very dramatic, for instance the 1795 O-131 and 1806 O-123. The 1827 O-148 was also an R-6 coin to boot.

My coin, although not as impressive as the Logan 1809 coin, 1795 O-131, 1806 O-123 and 1827 O-148 is still the only Reeded Edge Half that I could find as being Double Struck. Below are some photos of my coin that I believe is an 1837 GR-15:



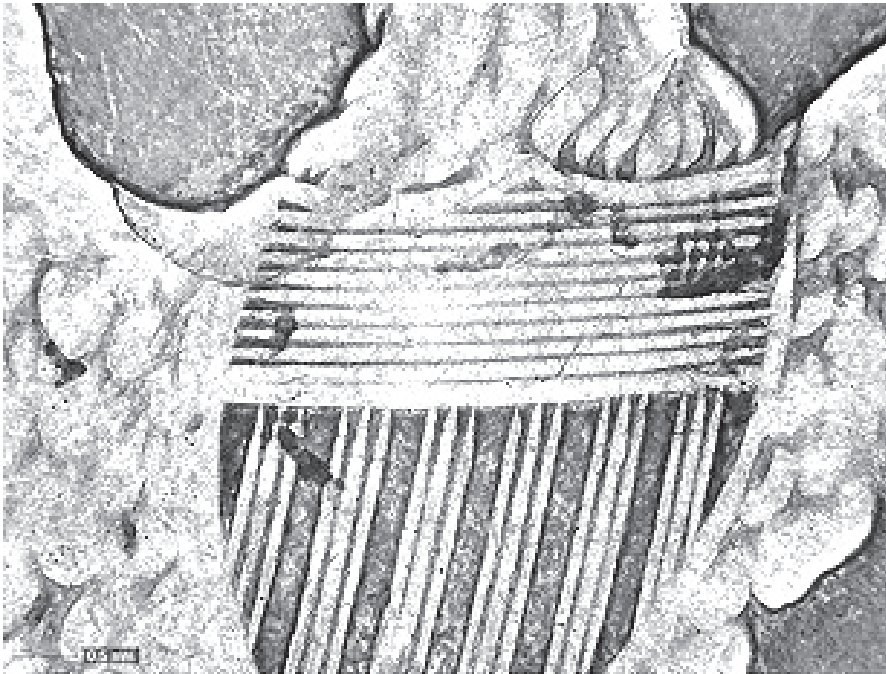
**Figure 1**  
**1837 GR-15 Double Struck Obverse**



**Figure 2**  
**1837 GR-15 Double Struck Reverse**



**Figure 3**  
**Blowup Showing RTY Struck above ERT**



**Figure 4**  
**Blowup Showing Arc of Left Wing Struck over Upper Corner of Shield**

There is a large gash on the obverse that I think may be Mint made during the process of double striking. I would like to hear from other JRCS members to hear their thoughts. Members can reach me by Phone at (951) 242-1858 or they can email me at [bustcoin1@verizon.net](mailto:bustcoin1@verizon.net) .

Also, interested members may see my Reeded Edge Half Dollar collection on my website "[holeduscoins.com](http://holeduscoins.com)". I would love to hear from other Reeded Edge Half collectors.





# **A Valentine Mystery Solved**

**By A. H. Foerder**

I would assume most John Reich Journal readers have not studied thoroughly the 1931 ANS Booklet entitled “Numismatic Notes and Monographs No.48, The United States Half Dimes,” by D.W. Valentine. If they did, they would discover that the author and collector, D.W. Valentine, did the unusual. The first “plate coin” he presented in his ground-breaking work on half dimes was a damaged 1792! Most authors put their best foot forward, so starting off his book with a damaged example does not make much sense, on the surface, unless he didn’t believe it was damaged, but instead thought it was unique to some degree.

So the question is, why would such a noted numismatist who had many of the finest known half dimes and every, or nearly every, die marriage known at the time, including the second finest known 1802 half dime (his 1802 is now graded PCGS AU50, second finest to a PCGS AU55), start off the plate section of his monograph with a damaged plate coin? That is the mystery I will attempt to clear up in this article. Hopefully, once I do so, many will form an ever deeper appreciation for his Notes & Monographs No. 48.

I will start off by opining that damage is in the eye of the beholder. For instance, coins that are counterstamped or engraved or even chop marked are considered to be damaged by many numismatists, collectors, and dealers. Yet, at the same time, many other numismatists, collectors, and dealers consider such coins to be unique and highly collectable. What is trash to one group can be gold to another. With that in mind, one needs to look closely at the so-called damage found on D.W. Valentine’s Plate No.1 in his monograph.

I will wager that few half dime aficionados have ever studied Dr. Valentine’s booklet closely enough, let alone noticed that his first plate coin was not just another high grade specimen, but a curious piece with a round mark at 11 o’clock of its obverse that is about the size of one of the letters on the periphery and a corresponding bulge on the reverse at 2 o’clock (see exhibit 1 for a photograph of this coin). Dr. Valentine used photographic-quality black & white “collotype” plates to show off his collection, so his plate coin photos can be magnified and clearly seen to help the reader take a closer, less-distorted look. However, in the case of his 1792 Half Disme, it still is not enough to see what the so-called damage exactly is, or to get a clear picture of the surfaces of the coin for grade, toning, and originality.

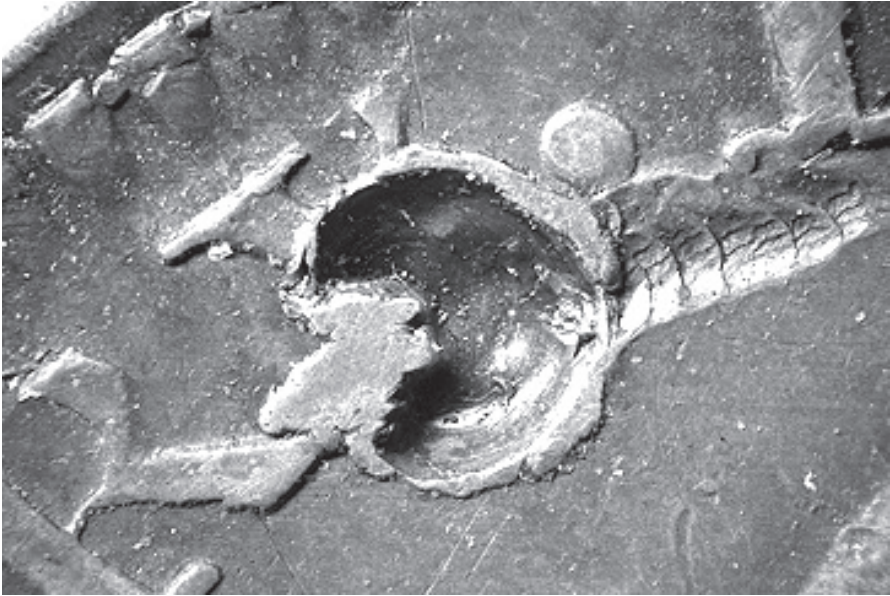




**Exhibit 1**

**The Valentine Plate Coin for 1792 Half Disme. Photo by Mark Goodman**

Take a look at exhibit 2 for a close-up photo of the “damaged” area of Valentine’s 1792 Half Disme. Please note that one not familiar with counterstamps, engravings or chop marks may assume the so-called damage is an attempted hole/puncture. That is an incorrect conclusion! The area is perfectly round and smooth with microscopic remnants of circular, evenly spaced ridges that one can only achieve by using a drill. The drill stopped well before it pierced through the coin. This is an important fact to note since a 1792 Half Disme is so thin that one would have to take extra precaution to NOT drill through the coin, as it would have been much easier to just punch through it as opposed to taking the care not to puncture the coin. Notice the remnants of metal protruding from the surfaces of the coin that remain. This is the extra metal that was forced out and remained on the coin. This extra metal would have to be removed had someone wanted to create a hole for suspension. Lastly, notice the drill marks indicate a physical “skip” to the right of the drilled-out area, probably the only true damage to the coin’s surfaces resulting from the driller first missing his mark. If a hole was intended, there would not have been a miss, there would have been a hole, no problem.



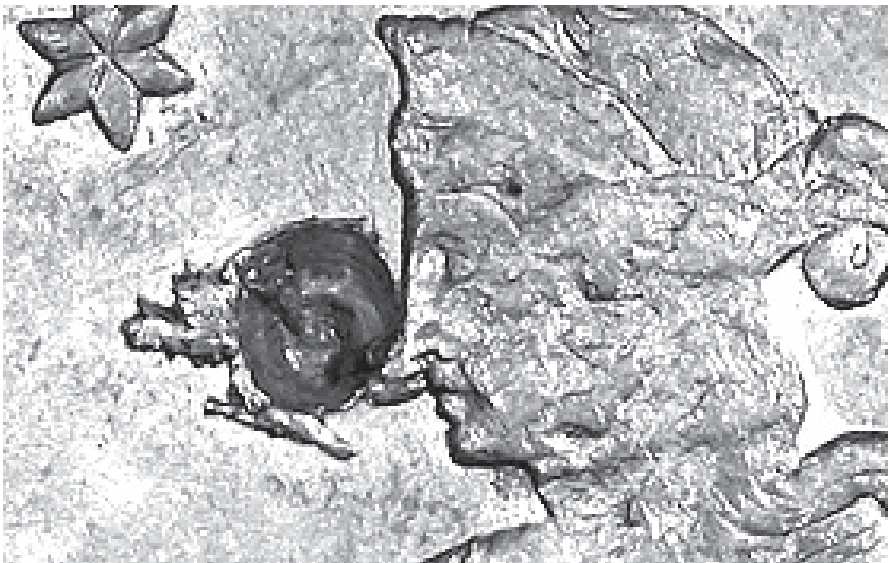
**Exhibit 2**

**The “damaged” area of the Valentine 1792 Half Disme. Photo by Mark Goodman**

Exhibit 3 is a chop marked Trade Dollar with a test drill (and other chop marks) and Exhibit 4 is a close-up of this 1873 Trade Dollar’s test drill. Notice the chops on the Trade Dollar and the accompanying test drill. The test drill/chop mark is extremely similar to what is to be found on the Valentine 1792 Half Disme. Noted expert and author of “Chopmarks”, Frank Rose, called test drills on Trade Dollars and other coinage chop marks, since this pattern of so-called damage to the coins was all performed by numerous merchants, shop keepers, and others involved in commerce throughout the Orient. The Professional Coin Grading Service (PCGS) often encapsulates chop marked and test drilled Trade Dollars in no-problem, graded holders, with the chop-marked status noted on the holder. Further evidence of both types of chop marks (test drills and “standard” chops) can be seen on many other Trade Dollars. Examine Exhibit 5 and Exhibit 6 where you will see both types of chop marks on a PCGS graded Trade Dollar, including a close-up of the test drill that also closely resembles the test drill found on Valentine’s 1792 Half Disme.



**Exhibit 3**  
**A PCGS AU53 Trade Dollar. Photo by PCGS**



**Exhibit 4**  
**Close-Up of Test Drill on PCGS AU53 Trade Dollar. Photo by PCGS**



**Exhibit 5**  
**A PCGS XF40 Trade Dollar. Photo by PCGS**



**Exhibit 6**  
**Close-Up of Test Drill on PCGS XF40 Trade Dollar. Photo by PCGS**



1792 Half Dimes are typically found in low grades with many having a hole or a hole repair. Rationale to explain this is that this was the first coin minted by the United States and was likely saved and then holed so it could be worn as a piece of suspension jewelry. Few are known in high grades, only a small number exist in AU and MS grades. An estimated twenty or so 1792 Half Dimes exist today in mint state grades. The fact that Valentine owned a 1792 in AU that was original, and naturally toned, is no surprise. He owned some of the finest half dimes of his time and why not? Being a practicing New York dentist, he would have been able to afford the best and maybe did not have a mint state 1792 because they were still in strong hands at the time he collected. Notably, David Rittenhouse (and his family) owned four mint state 1792 Half Dimes at one time...and the family owned them for a long time. I read a passage from the catalog of the Stack's Bowers Pogue auction concerning a PCGS MS64 1792 Half Dime that was "one of four that belonged to David Rittenhouse and has never been out of the family until now" (a quote from Henry Chapman regarding a Half Dime he sold in October of 1919). As the first coin minted by the United States, other American and foreign dignitaries possibly obtained, or were given, an example and perhaps passed these Half Dimes on to their heirs as well, making it difficult to acquire an example in high grade.

Acquiring an AU specimen was no easy task. The one chosen by Valentine featured a test drill that was small and on the periphery, so it was hardly noticeable and would do just fine as a plate coin in his monograph. That may have been his thinking and reasoning at the time and why the test-drilled 1792 was included in his book. I am sure he had the means and time to acquire another AU if he could find one, albeit not that many would have been available. Remember, he was collecting in the late 1800's and into the early 1900's since his book was printed in 1931 and he died shortly thereafter. He had 45 years to acquire another undamaged example. Could this piece have been a special piece to him and not just an AU example, but an AU example with an important feature?

As an aside, I wanted to address the "status" of the 1792 Half Dime prior to offering my conclusions. There has been much discussion as to what the 1792 Half Dime was intended to be: pattern or circulation coin. It has never bewildered me, especially since a healthy number were minted (at least 1,500) on July 13, 1792 and distributed almost immediately to dignitaries with many being put into circulation. Since most of the currently-known examples are heavily worn, it is not hard to believe that they were circulating throughout our small country and overseas. Consider too that 1,500 was not a small number if you consider that the next half dime, the 1794, saw only 7,756 minted in 1795. Later, the 1802 saw only 3,060 produced. When you consider the

1792 Disme, which is commonly considered a pattern coin with under twenty minted, I would say there should be no question that the 1792 Half Disme is no pattern coin and was intended for circulation, a conclusion reached by examination of the number minted and the thinking of the day. A young, conservative, poorer nation, less than 20 years after the Revolutionary War, would likely exercise conservative fiscal policy and minting for the very first time should have been for circulation, wouldn't you believe? I would. Tell me where a 1792 Disme pattern was saved and holed for suspension. It just was not done, as there was no reason. It was a pattern, not intended for circulation and not in circulation and did not represent anything to the citizens of the country besides being impossible to acquire. Most citizens never even saw the 1792 Disme pattern, but many did get the opportunity to see the 1792 Half Disme.

Since the 1792 Half Disme circulated, and was distributed to dignitaries, the possibility that it could arrive overseas and in the Orient is real. If it did indeed end up in the Orient, it is realistic that a shop keeper would test the coin for its silver content, not being familiar with it. To a merchant, it was just another foreign coin to him that was used in trade. If it were used in trade, a test drill would give comfort to the shop keeper that it was silver through and through. The fact that the piece had a drill skip is a testament to the fact that performing a test drill on such a small coin, as compared to a large Trade Dollar, would prove more difficult. One does find chops and test drills on smaller coins, albeit such coins are quite rare.

D.W. Valentine's first plate coin, with an area of so-called and almost unnoticeable damage, went unnoticed or under-studied by most numismatists for almost 85 years. It is this author's opinion that Dr. Valentine's 1792 Half Disme is really a unique specimen in that it has a test drill mark most likely made by a shop keeper in the Orient. As such, it is the only known chop marked example of the 1792 Half Disme.



## **JRCS Connections at the Summer Seminar Book Sale**

### **By Garrett S. Ziss**

This past summer, I traveled to Colorado Springs, Colorado, for my first ANA Summer Seminar. I attended the Early American Coppers course, expertly taught by Steve Carr and Doug Bird. Being surrounded by other numismatists for 4 days was definitely the highlight of my summer!

Every year on the first day of Summer Seminar, the ANA Library holds a sale of their surplus books. I had heard great things about the sale and was looking forward to it. When I arrived at the sale, I immediately discovered that the book room was tiny. You had to excuse your way through a crowd of numismatic bibliophiles in order to get around the room, but the effort was worth it!

I went right to work adding to my collection of numismatic auction catalogs. Fellow JRCS member, Nathan Markowitz, was also hunting in the room. He skillfully chose a few other catalogs he thought should be in my collection and I added them to the box I was using to collect my numismatic treasures.

As I rummaged through a pile of books, I discovered a three-ringed pamphlet, entitled, “United States Large Cents 1844-1857”. It was an early draft of an attribution guide by JRCS legend, Jules Reiver. It was addressed to Armand Champa and signed by Mr. Reiver. In the cover memo, dated October 27, 1970, he requested “...your frank comments, the franker the better.” Of course, the pamphlet promptly made its way into my box.

My box was filling up with some great numismatic items, but the best find was yet to come. I noticed a man looking at a book from across the aisle, and the words “Half Dollar Die Varieties” caught my eye. When he put the book down, I wanted to leap over the tables to check it out, but I calmly made my way to the book. It was the Deluxe Leather-Bound edition of Martin Luther Beistle’s, *A Register of Half Dollar Die Varieties and Sub-Varieties*. Unfortunately, the front cover was detached from the book and it was expensive. The price was half of my entire book sale budget, so I debated for quite a while about whether to buy it. However, in the back of my mind, I remembered that David Davis wrote about documenting the surviving copies of these Beistle books in a John Reich Journal article. I finally concluded that if David Davis wrote about it, then it was a book I should buy. I carefully placed the Beistle book in my box.

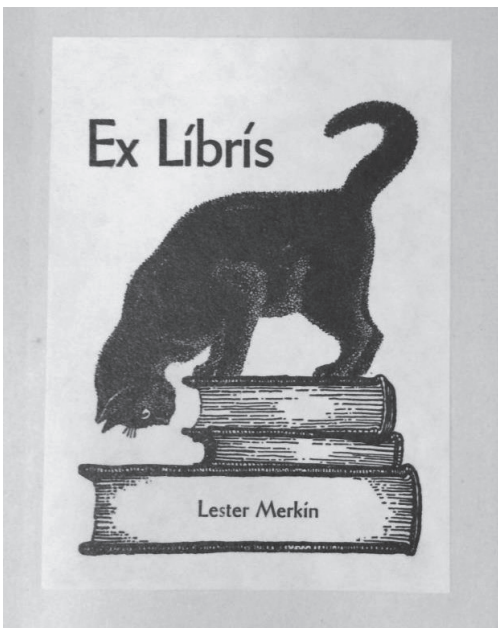
After I purchased my books, the box was sealed up and whisked away to be shipped home, so unfortunately, I had no time to examine them more closely. My disappointment only lasted a few minutes though, because I headed back to the dorm to hang out with the other Young Numismatists.



When I returned home, and the box of books arrived in the mail, I was excited to finally get a closer look at my purchases. The first items to come out of the box were the auction catalogs. The catalog I was most happy to add to my collection was Lester Merkin's *Public Auction Sale - September 18, 1968*, since David Perkins has written extensively about the amazing Bust half dimes and dollars from this sale.

Next, I pulled out the attribution guide that Jules Reiver sent to Armand Champa. I had heard of Armand Champa, but didn't know much about him, so I Googled him. I learned that he was a famous numismatic literature collector from Kentucky, who also owned several roller skating rinks. What I didn't expect to see in my Google search, were Armand Champa refrigerator magnets! It turns out that E-Sylum Editor, Wayne Homren, made three Armand Champa refrigerator magnets to sell at a Numismatic Bibliomania Society fundraising auction several years ago. A picture of one of the magnets is shown at left, and the corresponding E-Sylum article can be found at: [www.coinbooks.org/club\\_nbs\\_esylum\\_v12n49.html](http://www.coinbooks.org/club_nbs_esylum_v12n49.html).

The Beistle book was protectively wedged into the corner of the box, so I carefully pulled it out. Finally, I was able to examine it! I started by looking at the front cover and first few pages, which were detached from the rest of the book. That's when I made a key discovery. There was a sticker hidden on the inside of the cover that said "Ex Libris, Lester Merkin (shown at right)". Could it be that my Beistle book was from the library of famous numismatist, Lester Merkin? I e-mailed Brad Karoleff to get his opinion. I learned from him that the sticker is called a bookplate, and he agreed that the book is likely from Lester Merkin's library. I was thrilled!





My next discovery was that David Davis wrote not one, but two JRJ articles that mention the Deluxe Leather-Bound edition of *A Register of Half Dollar Die Varieties and Sub-Varieties* (Volume 8 / Issue 2 and Volume 9 / Issue 1). In both articles, he discussed his efforts to locate the surviving copies of this book. One hundred thirty-five (135) copies were printed and Mr. Davis was able to document the ownership of 22 of them. I was excited to see that my Beistle book, number 114, was one of the 22 copies listed as “known to him” in his articles. I’m hoping to locate Mr. Davis’ original research in order to learn more about the pedigree of my copy.

The catalogs, pamphlets and books I purchased at the ANA book sale have really enhanced my numismatic library. All the amazing finds at this year’s book sale, make me wonder what’s in store for next year...



## **Craig Sholley Wins the 2015 Jules Reiver Numismatic Literary Award**

**By Stephen A. Crain**

The winner of the 2015 Jules Reiver Numismatic Literary Award is Craig Sholley, for his article entitled “The Evolution of U. S. Minting Technology: The Rush & Muhlenberg Screw Press”, appearing in Issue 3, Volume 25 of **The John Reich Journal**. There is a significant dearth of available information on the machinery and operations of the early U. S. Mint, and Craig’s detailed discussion of the Rush & Muhlenberg screw press, and the differences between coining and hubbing presses does much to fill this void. Congratulations to Craig for his excellent article.

There were votes for nearly every article to appear in Volume 25 of **The John Reich Journal**, attesting to the fact that there is serious interest among the readers for all of the contributions by our authors. Hopefully this will encourage some would-be authors to submit an article on the numismatic subject of your choice, and maybe you can be a future recipient of the prestigious Jules Reiver Numismatic Literary Award, to be presented at the annual JRCS membership meeting at the American Numismatic Association Summer Convention in Denver in August 2017.



## Bust Quarter Census

By Glenn R. Peterson, MD

Welcome to the 2016 Bust Quarter Census. Our last census was volume 24/ Issue 1 in April 2014. We have better participation this year with the total number of coins reported having risen from 1495 to 1973. A major collector has joined our ranks with some astonishing coins including 1827 B1 in proof 64, 1827 B2 restrike proof 63 and 1827 B2 restrike Proof 65 in copper. He has also acquired the 1821 B6 in MS 65 grade finest by far for this exceedingly rare die marriage with 6 coins known as well as a new example of the only R8 bust quarter, 1837 B6, in XF 40 grade; finest of three examples. In all, the breadth and depth of quarter collections reported has expanded.

Many of these new additions have come from two famous sales The D. Brent Pogue sale of quarters May 19 2015 by Stacks Bowers Auctions and the Eugene Gardner collection sold by Heritage Auctions over several different dates. Remarkable coins in the Brent Pogue collection include a 1796 in MS 66 grade, 1821 B6 MS 65 finest known, 1822 B2 25/50 C Pf 65 grade, 1823 B1 AU 58 grade, 1827 Proof 66 cameo and 1834 B2 Proof 67 cameo, the Sultan of Muscat coin.

Table 1 D. Brent Pogue collection of Bust Quarters			
1796	B2	MS 66	\$1,527,500
1804	B1	MS 64	\$211,500
1805	B3	MS 64	\$30,550
1806	B1	MS 66	\$188,000
1806	B10	MS 64	\$54,344
1807	B1	MS 65+	\$141,000
1815	B1	MS 66	\$90,938
1818	B1	MS 65	\$32,900
1818	B3	MS66	\$49,930
1819	B1	MS65	\$88,125
1820	B1	Pf 66	\$188,000
1820	B1	MS 66	\$99,875

1820	B2	MS 66	\$44,000
1820	B3	MS 66	\$64,625
1820	B5	MS 66	\$99,875
1821	B5	Pf 67	\$235,000
1821 *finest known, photo below	B6	MS 65	\$94,000
1822	B1	Pf 67	\$246,750
1822	B1	MS 64	\$35,250
1822	B2	Pf 65	\$223,250
1822	B2	MS 65	\$188,000
1823	B1	AU58	\$246,750
1824	B1	MS 64	\$141,000
1825	B2	MS 65	\$52,875
1825	B2	MS 65	\$32,900
1827	B1	Pf 66+cameo	\$705,000
1828	B1	MS 65	\$41,125
1828	B3	MS 63	\$82,250
1831	B1	MS 66	\$35,250
1831	B2	MS 65	\$39,656
1831	B4	MS 66	\$55,813
1831	B5	Pf 65 cameo	\$45,750
1832	B2	MS 65	\$52,875
1832	B2	MS 65	\$32,900

1833	B1	MS 67	\$94,000
1834 *Sultan of Muscat coin	B2	Pf 67 cameo	\$329,000
1834	B4	MS 66	\$58,750
1835	B7	MS 66	\$99,875
1836	B1	MS 63	\$12,925
1836	B2	MS 64	\$17,625
1837	B2	Pf 67	\$152,750
1837	B2	MS 67	\$117,500
1838	B1	Pf 66	\$47,000
1838	B1	MS 65	\$35,250

Table 2 Eugene Gardner collection of Bust Quarters (highlights)			
1796	B1	AU 58	\$82,250
1804	B1	MS 63	\$152,750
1805	B2	MS 64	\$70,500
1806	B1	MS 64	\$55,812
1821	B4	Pf 65	\$94,000
1822	B2	MS 65	\$123,375
1823 *photo below	B1	Pf 64	\$396,562
1827 *photo below	B1	Pf 64	\$411,250
1827 *photo below	B2	Pf 63	\$51,700
1828	B4	Pf 65	\$82,250





**Figure 1**

**1821 B6 MS 65, finest of 6 known newly added to our census from the D. Brent Pogue sale, Stack's/Bowers Auctions.**



**Figure 2**

**1823 B1 R6 Pf 64, finest of 30 known from Eugene Gardner sale, Heritage Auctions.**



**Figure 3**  
**1827 B1 R7 Pf 64, 3rd of 9 coins known, this one from Eugene Gardner sale, Heritage Auctions.**



**Figure 4**  
**1827 B2 R6+ Pf 63, 9 coins are restrikes in silver, 5 copper restrikes, 2 Essay Pieces. This coin in silver from Eugene Gardner sale, Heritage Auctions**





**Figure 4**  
**1827 B2 Pf 65, restrike on silver plated copper planchet**  
**from the Heritage Lemus Sale, January 2009.**

Year	B#	Rarity	589	282	1068	726	323	833	1029	275	LM56	869	48	1006	1130	1054	1090	RPD	AVG	MAX
1796	1	4+	8	12	2			8							2	1		6	6	12
	2	3	8	12	3			3	3							25		6	9	25
1804	1	3	12	30	6	40	10	25	20	63			2	12	1	35		12	21	63
	2	5	8	15	3	20	10	3		6			3		3	4		10	8	20
1805	1	4+	18	12	6	53	10	12	40		15	8	3		8	58		12	20	58
	2	2	40	10	15	55	35	6	55	30	8	8	6	15	10	58		14	25	58
	3	2	8	15	15	40	6	12	50	64	10	4	4	30	15	58		14	24	64
	4	4-	30	10	4	58	4	12	58		8	8	4		8	62		12	22	62
	5	5+	20	12	4	55	10	4	10		8	3	4			45		11	16	55
	1	2	20	12	4	25	6	30	20		8	12	4	12	6	55		13	16	55
1806	2	2	18	10	4	62	12	10	61		8	10	6		12	20		12	19	62
	3	1	40	25	6	50	8	35	55		6	8	6		12	58		12	26	58
	4	4-	18	12	8	53	8	15	50	30	8	8	6	30	12	55		14	22	55
	5	4+	40	12	10	55	20	10	15	20	6	20	4	20		58		13	22	58
	6	5	20	25	6	40	20	12	45	25		8	4	25		55		12	24	55
	7	5	30	10	8	58	58	10	58	55		8	4			58		11	32	58
	8	6	30	15	4	40	6		8				3			45		8	19	45
	9	1	15	25	3	50	8	15	58		12	8	6	30		50		12	23	58
	10	5	35	35	8	53	4	4	25		6	6	3			15		11	18	53
	1	2	45	35	6	30	4	20	58		18	10	4	10		63		12	25	63
1807	2	3	25	15	8	55	6	8	25		10	6	3		12	58		12	19	58
	1	1	58	20	25	58	8	30	53	66	20	12	4	25	12	15	58	15	31	66
1815E	1		50			63	58	53		61	55	50					63	8	57	63
1815L	1					58	55	55			25						58	5	50	58

# Bust Quarter Census

Year	B#	Rarity	589	282	1068	726	323	853	1029	275	LM56	869	48	1006	1130	1054	1090	RPD	AVG	MAX
1818	1	2	62	40	25	50	10	35	55	66	15	10	4	30	50	53	58	15	38	66
	2	1	50	25	45	55	10	58	55	66	25	20	20	40	12	50		14	38	66
	3	3	50	12	20	53	15	40	55	64	15	12	6	45		6	63	14	33	64
	4	3	62	12	20	25	10	35	40	58	20	8	6	45	35	45	64	15	32	64
	5	4+	40	40	15	50	20	45	45	45	8	10	6	15	12	30	58	15	29	58
	6	4	15	30	4	40	15	20	58	64	12	15	8	50	30	35	64	15	31	64
	7	4+	45	30	30	45	6	8	55	35	15	15	3	45	10	15		14	26	55
	8	3	50	20	25	61	20	12	58	62	8	12	2	45	20	58	62	15	34	62
	9	4+	30	45	4	40	10	20	58	58	12	4	6	20	8	45		14	26	58
	10	3	45	20	30	55	20	12	35	63	8	8	8	35	15	58	58	15	31	63
1819	1	5-	25	50	30	58	20	8	55	65	25	15	10	35	12	25		14	31	65
	2	3-	50	30	35	58	6	15	45	65	20	12	4		10	62	61	14	34	65
	3	1	20	20	20	50	15	10	55	65	20	12	4	30	45		63	14	31	65
	4	4+	50	12	10	50	10	10	45	12	30	10	4	15		35		13	23	50
1820	1	4+	40	10	20	40	12	45	58	66	35	12	8	35	12	45		14	31	66
	2	2	45	12	25	53	25	30	58	65	15	10	6	40	20	12	64	15	32	65
	3	3	20	10	30	61	8	18	50	66	15	12		25	8	20		13	26	66
	4	2	20	10	20	55	8	35	20	66	12	15	4	30	40			13	26	66
	5	5+	40	20	4	25	8	4	25	66	15	4	4			15		12	19	66
1821	1	2	30	15	25	58	12	35	62	35	20	15	6	12	8			13	26	62
	2	5	30	10	20	45	20	10	61	63	25	12	6	20	20	53		14	28	63
	3	2	40	25	20	55	20	50	45	65	20	8	15	30	20	63	64	15	36	65
	4	3	45	10	35	50	58	30	63	15	8	20		25	10	12	63	14	32	63
	5	4+	63	8	15	55	10	8	63	63	30	10	4	40			64	13	33	64
	6	7	30				3		8	65								4	27	65
1822	1	2	35	12	20	45	25	30	50	67	12	15	6	30	35	15		14	28	67
	2	5	8	8	4	50	8	3	3	64						6		9	17	64
1823	1	6		8		30				64						8		4	28	64
1824	1	3	40	10	8	53	45	20	58	62	8	10	6		8	53		13	29	62
1825	1	5	18	50	20	45	20	20	58	63	6	6	2	12	30	58		14	29	63
	2	2	35	40	40	58	12	20	20	65	15	8	4	25	30	55	58	15	32	65
	3	3	35	20	45	58	20	12	35	66	18	20	2	45	8	55	63	15	33	66
1825E	2		55			58	55	58			45						58	6	55	58
1825L	2		40			55	50	45			20						58	6	45	58
1827	1	7								64								1	64	64
	2	6+								65								1	65	65
1828	1	1	63	58	25	55	50	10	50	64	18	8	2	25	20	20	62	15	35	64
	2	5-	55	15	15	58	10	20	63	53	10	8	8	15	8	55		14	28	63
	3	5-	35	12	3	55	10	8	8	63	3	8	8		15	58		13	22	63
	4	3	50	15	35	53	8	12		66	15	12		40	4	55	62	13	33	66
1831	1	3	40	55	40	58	45	20		66	30	25	20	40	30		62	13	41	66
	2	2	40	20	30	58	50	45	63	61	35	35	6	40			64	13	42	64
	3	5	48	20	12	53	50	12	55	65	35	25	8	45	15		58	14	36	65
	4	1	40	50	35	53	45	30	55	66	30	20	6	45	40		61	14	41	66
	5	2	50	55	50	55	40	53	64	67	35	20	10	30	15		64	14	43	67
	6	3	45	20	40	55	45	62	62	55	45	40	12	45	30		63	14	44	63
	7	5+	40	8	20	55	10	4	45	12	30			15				10	24	55
1832	1	2	50	40	55	58	55	40	58	63	45	40	20	50			60	13	49	63
	2	2	45	30	50	58	40	30	58	65	30	15	6	53	58		63	14	43	65
1833	1	2	45	40	40	58	53	50	63	67	20	20	30	50	50		64	14	46	67
	2	4-	40	45	45	55	50	12	58	63	40	12		40	20		63	13	42	63



# Bust Quarter Census

Year	B#	Rarity	589	282	1068	726	323	853	1029	275	LM56	869	48	1006	1130	1054	1090	RPD	AVG	MAX
1834	1	1	45	35	53	58	45	15	55	64	45	25	6	58	50		63	14	44	64
	2	4	40	25	45	55	45	30	58	65	45	30	8	40	45		63	14	42	65
	3	3	30	25	45	58	45	45	55	58	30	20	20	50	50	55	65	15	43	65
	4	1	45	30	45	53	61	55	58	66	40	20	45	55	40		62	14	48	66
	5	5	35	40	35	58	40	45	62	25	35	15	8	20			61	13	37	62
1835	1	1	45	40	45	55	45	50	55	62	35	25	15	53	40		63	14	45	63
	2	2	50	40	40	58	50	45	62	63	45	40	12	45	50	62	65	15	48	65
	3	4+	40	40	25	55	50	20	58	55	50	30	6	40			58	13	41	58
	4	4	35	40	25	55	40	40	55	64	20	30		40	20		63	13	41	64
	5	3	58	45	50	58	40	30	58	65	20	25	6	53	40		62	14	44	65
	6	3	40	40	10	58	45	30	61	53	35	35	15	45	20	30	63	15	39	63
	7	2	45	60	50	55	40	45	62	63	45	40	6	61	20	55	62	15	47	63
	8	5-	40	30	50	53	55	20	63	55	30	15	40	40	20		55	14	40	63
1836	1	3	45	45	20	58	45	12	55	63	25	30		40	40		58	13	41	63
	2	2	35	45	30	58	35	45	58	62	18	35	6	55	20		63	14	40	63
	3	1	35	20	30	53	50	45	62	67	35	45		25	45		64	13	44	67
	4	4	45	40	45	45	45	45	64	63	35	35	20	40			58	13	45	64
	5	6+	15	40	10	20	20	20	45	40	6							9	24	45
1837	1	4	40	35	40	55	50	20	62	65	35	20	8	45	40		61	14	41	65
	2	1	40	40	50	50	40	45	58	66	15	25	8	50	50			13	41	66
	3	4	45	20	45	55	40	15	64	62	30	45		40			65	12	44	65
	4	3	35	25	35	53	40	45	63	53	40	15	4	45	15			13	36	63
	5	5	50	35	53	50	58	8	63	65	35	30	8	40			63	13	43	65
	6	8	15						12	40								3	22	40
1838	1	1	50	50	45	62	35	55	58	66	35	30	6	45	40		64	14	46	66
Marriages Owned Average Grade			589	282	1068	726	323	853	1029	275	LM56	869	48	1006	1130	1054	1090	96 known DIE MARRIAGES		
			93	92	91	90	90	90	89	83	83	83	78	73	68	57	49			
			37	26	25	51	26	25	49	57	22	17	8	35	23	41	62			

Year	B#	Rarity	AG/G	VG	F	VF	XF	AU	UNC	TOTAL
1796	1		3	2	1					6
	2		3	1		1				6
1804	1		3	4	2	4	1		1	15
	2		6	2	1	1				10
1805	1		3	3	4		1	2		13
	2		4	4	2	3	1	3		17
	3		4	2	7	3	1	2	1	20
	4		5	5	1	1		2	1	15
	5		5	4	1	1	1	1		13
1806	1		4	3	3	4		2		16
	2		2	5	3	1			2	13
	3		4	2	2	2	1	3		14
	4		1	4	4	2	1	3		15
	5		4	2	4	4	1	3		18
	6		5	1	1	6	2	1		16
	7		2	4		1		5		12
	8		3	1	1	1	2			8
	9		4	3	3	2		3		15
	10		6	1	1	3		1		12
1807	1		4	2	3	3	1	2	1	16
	2		8	3	3	2		2		18

## Bust Quarter Census

Year	B#	Rarity	AG/G	VG	F	VF	XF	AU	UNC	TOTAL
1815	1		1	4	8	9	2	8	1	33
	1 E						2	7	3	12
	1 L					1	1	4		6
1818	1		3	6	4	5	2	8	3	31
	2		4	2	6	4	5	9	1	31
	3		2		4	2	2	6	3	19
	4		3	4	7	5	4	10	2	35
	5		2	3	3	1	6	3		18
	6		4	1	6	5	2	4	2	24
	7		5	4	4	5	3	3		24
	8		3	2	4	4	1	7	4	25
	9		5	3	1	4	3	4		20
	10		3	5	5	6	2	6	1	28
1819	1		2	6	2	6		5	2	23
	2		2	5	4	4	2	4	3	24
	3		2	1	8	6	4	4	3	28
	4		8	7	4	3	4	4		30
1820	1			4	5	5	7	3	1	25
	2		2	2	9	5	3	3	3	27
	3		2	5	4	4		4	2	21
	4		2	6	1	8	1	5	2	25
	5		5	1	2	3	2	1	2	16
1821	1		2	3	5	5	1	3	1	20
	2		3	3	1	6	1	2	2	18
	3		3	3	3	8	3	5	3	28
	4			3	3	6	2	8	4	26
	5		1	6	5	1	1	3	4	21
	6		1	1		3			1	6
1822	1		4	3	8	6	2	3	1	27
	2		6	3	1			2	1	13
1823	1			2		1		2	1	6
1824	1		5	5	2	2	2	4	1	21
1825	1		3	2	5	5	2	6	1	24
	2		1	9	7	13	2	10	3	45
	3		10	1	7	6	4	7	2	37
	2 E						1	6		7
	2 L					1	2	4		7
1827	1								2	2
	2								3	3
1828	1		1	4	4	6		8	5	28
	2			6	4	1		5	1	17
	3		3	5	4	1	1	4	1	19
	4		1	3	8	2	2	6	5	27
1831	1					5	5	2	4	16
	2		3			8	4	4	4	23
	3			1	5	3	4	4	1	18
	4		1		2	8	7	4	4	26
	5			2	1	6	1	7	5	22
	6			1	2	8	6	2	3	22
	7		3	3	2	5	2	1		16
1832	1					3	4	9	2	18
	2		1		2	6	4	5	3	21

Year	B#	Rarity	AG/G	VG	F	VF	XF	AU	UNC	TOTAL
1833	1					7	8	5	3	23
	2			1	2	4	5	3	2	17
1834	1	1		1	4	9	5	7	3	30
	2			1	2	6	7	2	2	20
	3					8	5	6	1	20
	4				2	6	8	7	5	28
	5			1	1	9	4	1	2	18
1835	1			1	2	9	8	5	2	27
	2				4	6	7	4	4	25
	3	1			1	6	3	6		17
	4					9	7	2	3	21
	5	1			1	7	5	5	2	21
	6			1	1	11	6	3	2	24
	7	1		2		7	4	4	5	23
	8			1	3	6	3	5	1	19
1836	1			1	1	12	6	4	1	25
	2	1			1	16	3	3	3	27
	3	1			1	9	6	3	4	24
	4	1		1	3	5	7	1	2	20
	5	2		1	1	3	3			10
1837	1			1	1	10	6	2	3	23
	2			1	1	11	6	6	2	27
	3				5	2	5	1	3	16
	4	1			3	9	4	2	1	20
	5			2	4	5	1	4	3	19
	6				2		1			3
1838	1	1			2	9	7	5	5	29

Total Reported in All Grades 1973

Thanks goes to Stack's/Bowers Auctions and Heritage Auctions Galleries for the Illustrations used in this census. Special thanks also goes to Winston Zack for his help with the computer program used for the census. A personal thanks also goes to Mark Borkardt of Heritage Galleries for his assistance in locating information used in this census.



# **Pitting Corrosion, Hydrogen Embrittlement, and Residual Stress Cracking**

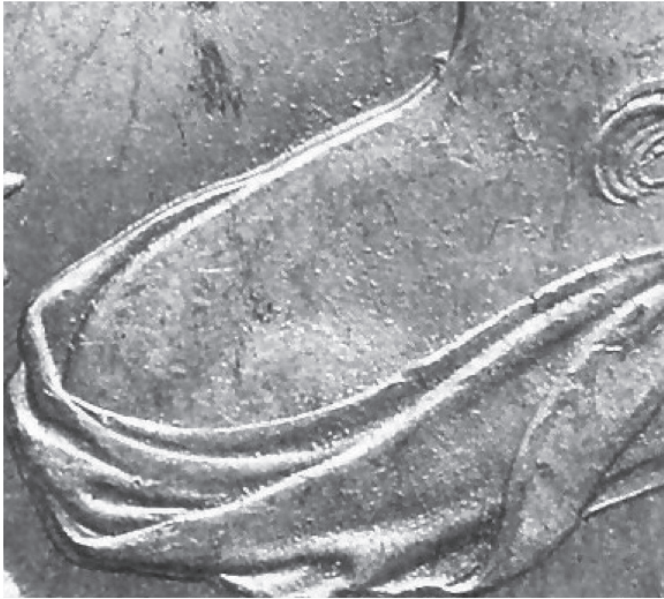
**Craig Sholley and John Dannreuther**

As a result of recent work on Gobrecht dollars and proof issues of the Liberty Seated series, the authors uncovered three defect mechanisms that have been described in metallurgical and metalworking texts, but they have not been reported in the numismatic literature. While these mechanisms explain several defects commonly seen on Liberty Seated coinage, this is not to say that these defects are limited to that series. Rather, it is simply that the increased number of dies makes these defects more obvious than on earlier coinage. In fact, with the possible exception of Hydrogen Embrittlement, these mechanisms are clearly present on Capped Bust and earlier coinage.

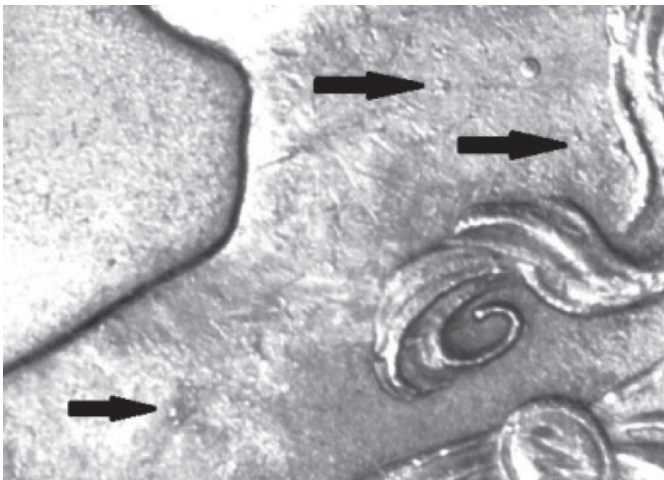
**Pitting Corrosion** – As the term implies, this defect mechanism is a form of extremely localized corrosion that results in pitting of the die surfaces due to corrosive attack. In early state dies, the most likely cause of this corrosion would be residual contamination with various naturally occurring salts (chlorides, sulfates, nitrates, fluorides, etc.) present in water used for rinsing the dies after polishing, in the polishing compounds of the day (made with the same water), and from acids (principally hydrochloric) used to remove surface tarnish after tempering.

As the dies were heated in tempering, the trace residues would quickly attack the steel, leaving small, scattered pits, particularly on the die faces, which were the area of the dies most exposed to polishing and acid cleaning. Pitting corrosion would also occur if the die had some residual contamination and was allowed to sit for an extended period of time, perhaps a couple months or so.

The result is small lumps or “pimples,” usually on the devices as the uneven surfaces and recessed area of the devices helped to retain the contamination. However, it can sometimes be seen in the fields near the central devices or around the letters. Examples of pitting corrosion are shown below.



**Figure 1**  
**1822 CBH - Pitting Corrosion in front of neck**  
**and bust, across bust, and in drapery.**



**Figure 2**  
**1820 CBQ with several areas of Pitting Corrosion marked.**



Pitting corrosion is often called “rust” in the numismatic literature and while “normal rusting” (a reaction of iron and oxygen in the presence of water) can result in pitting corrosion, these pits are seen on fresh, early state dies that have simply not been in storage long enough to form significant rust. Additionally, the pits are small and scattered rather than occurring in patches as is typical of rust.

Pitting corrosion is not limited to fresh, early state dies. It can also be seen on dies which are reused, such as reverses used over a period of years or dies used for restrikes. In this case, dies with some contamination from improper cleaning or rinsing with contaminated water are placed into storage and the corrosion develops over time. Again the pitting corrosion can be distinguished from typical rust by the characteristic scattered and isolated pits, whereas rust typically occurs in fairly large patches, often with distinct outlines.

**Hydrogen Embrittlement** – During the present authors’ studies into post-1836 proof coinage, we noted frequent cracking, bulging, and sinking in very early state proof dies along with an abysmally short die life, with many Liberty Seated proof dies lasting a couple hundred strikes, or less, while circulation strike dies of the same years typically lasted tens of thousands of strikes to well over a hundred thousand strikes.

Sholley, who was a process and quality engineer in the metal-forming industry, noted that one of the main differences between proof dies and business-strike dies was a fairly heavy acid-etching of the dies to create the frosted devices, and suggested that the cause may be due to hydrogen embrittlement. A subsequent review of the metallurgical literature confirmed that the type of early cracking, sinking, and bulging seen in the proof dies are typical effects of hydrogen embrittlement.

First discovered by British scientist William H. Johnson and published in a January 1875 article in the *Proceedings of the Royal Society of London*, hydrogen embrittlement results from the absorption of molecular hydrogen into iron and steel exposed to hydrogen-evolving acids, such as hydrochloric, which were used to both clean the tarnish resulting from tempering and to etch decorative patterns.

As Johnson noted, the absorbed hydrogen results in remarkably lower strength and elasticity. In coining dies, this reduced strength and elasticity leads to the very early-life cracking, bulging, and sinking seen in proof Liberty Seated coinage.



**Figure 3**  
**1881 Proof Quarter showing typical early-life cracking and**  
**sinking due to hydrogen embrittlement.**

Johnson went on to note that the overall effect depended on a number of factors, including the acid strength, time of exposure, temperature, and amount of carbon in the steel. He further found that heating the steel eliminated the effects as the hydrogen was driven out. Subsequent experiments by others showed that the effects could be eliminated by heating the metal to 200°C for a number of hours depending on thickness, or even allowing it to sit for a month or so before use as the hydrogen would naturally dissipate given enough time.

The fact that the embrittlement is affected by acid strength, time of exposure, and even how long the dies sat afterwards, explains why we do not see the same early-life cracking and sinking in business-strike dies, even though they were acid cleaned to remove tarnish caused by tempering. In this case, the dies were not exposed to strong enough acid for long enough to infuse much hydrogen. Additionally, business-strike dies often sat for some period of time before use.

Furthermore, this natural dissipation of the hydrogen also explains why not all proof dies show the early life failure modes indicative of hydrogen embrittlement and why some proof dies did, in fact, last for several years, with some reverses lasting 15 to 18 years.

We have not been able to identify hydrogen embrittlement as a probable cause of cracking on specific Bust or earlier coins. It is likely that some extent of hydrogen embrittlement did occur as the dies were cleaned with dilute acid (called pickling) to remove the tarnish caused by hardening and tempering. However, this acid cleaning was a brief dip as compared to the deliberate acid etching of later dies to produce the heavy frost seen on the devices.

Additionally compounding the problem are the facts that so very few proofs (or more properly, Master Coins) were struck of these issues, thus limiting the ability to point to hydrogen embrittlement as a cause. Further complicating the issue is that early Master Coins were struck using polished circulation strike dies, often after use for circulation strikes, thus establishing a probable cause even more difficult.

Nonetheless, even brief exposure to acid will cause hydrogen embrittlement. In fact, NASA specs prohibit the acid cleaning of hardened steel parts precisely for this reason! The authors strongly suspect that hydrogen embrittlement contributed to some of the early state cracking seen on Bust and earlier coinage. Hopefully, now that specialists are aware of this mechanism, intensive die state study will eventually reveal some solid evidence.

**Residual Stress Cracking/Strain Aging** – This phenomenon causes hardened steel tooling and dies which have been in use for some time to crack, often catastrophically, after a period of non-use, such as over a weekend. To this day, no one really knows the root cause of this failure mechanism.

Some metallurgical texts suggest that the cause is a build-up of stress around dislocation in the microstructure of the steel, while others suggest that it is due to a stress-induced migration of carbon and nitrogen atoms. Even the proper term for this mechanism is of some question, with the well-known Medallion Arts Company calling it “strain aging,” while the stamping plant where Sholley worked in the early 1980’s called it “residual stress cracking.”

What we do know is that, with advances in the science of physical metallurgy in the 1880’s to the early 1900’s, it was discovered that heating the steel to 200 - 250°C for an hour or so, depending on die size, and then allowing the die to cool normally not only relieved the induced stress and stopped this early life cracking, it also increased the strength of the steel.

There is little question that this failure mechanism regularly affected coining dies at the Mint as there are a number of dies failing from large, heavy cracks in early to middle states. And, we may even have a documented example of its occurrence!

In a July 12, 1843 letter to noted collector Matthew Stickney, Mint Assistant Assayer and Curator of the Mint Cabinet Collection, William E. DuBois, who was selling Stickney both original strikes and restrikes, noted that he was enclosing (among other coins) two 1838 half dollar restrikes with a flying eagle reverse. He further noted that, *"The collar and die were both broken, today, in striking a very few pieces."*

The die to which DuBois is referring is the Flying Eagle reverse used on the Judd 73, 74 and 79 pattern half dollars of 1838. This reverse is first used on Judd 79, where it is only lightly cracked from the rim above A in AMERICA, through AMERICA, DOLLAR, and over to the F in HALF. These cracks are the typical "circumferential hardening cracks" caused by the stress induced by hardening concentrating at the relatively deep and sharp points of the letters which served as "stress risers," thus resulting in light cracking through the letters during hardening or very early in striking.

However, early Judd 73 Restrikes have a series of three or more radial cracks emanating from about the center of the eagle to the rim, which corresponds quite nicely to both DuBois' statement that the die and collar broke during the striking of *"a very few pieces"* and the mechanism of residual stress cracking!



**Figure 4**  
**J79/73/74 Flying Eagle Reverse with Radial Stress Cracks.**

The die is subsequently listed in George Eckfeldt's journal, circa 1849, as "*The flying eagle for half dollars cracked and good for nothing.*" Despite that notation, Eckfeldt's journal notes that on May 12, 1852, the reverse was used to strike a number of additional pieces (the writing is illegible as to whether the number is 15, 25, or 45), during which it cracked yet again, as these strikes show two additional radial cracks, one from the tip of the eagle's left wing and another from the throat.

These additional cracks are probably not due to the "residual stress cracking" mechanism as the die was already heavily fractured. It is thus more likely that the additional fractures were simply be due to the already cracked steel fracturing further.

One probable example in the Bust series is the obverse of 1809 used on 108, 109, and 110. The emission sequence is 109-108-110. A strong radial crack from the edge of the die, through the lower arms of star 4, and to the center of Liberty starts on the 108 marriage. The dies clashed at least once rather strongly in the 109 marriage and the reverse cracks through AMERICA, probably as a result.

Later the reverse crack extends left to the F and right through the arrowheads (with die chips showing in this area), through 50 C, to the rim below the leftmost leaves. An additional crack appears through the tops of NITED STATES to the rim over O – the reverse die is breaking up.

In the 108 marriage, the obverse appears to have been lightly lapped to remove the clashing in the right field and stars, although the obverse clashing was never terribly heavy unlike the reverse, so this may merely be due to additional strike abrasion. However, Mint rules state that the dies should be returned to the engraver if they were damaged, so standard practice would have been to pull the 109 die pair and send them back to the engraver. And this sets up the exact scenario under which residual stress cracking occurs – the dies being used for some time, removed for a period of time, and placed back into service.

CBH specialists may point out the cracked obverse continued to be used for yet another marriage, that being 110. However, this has no bearing on the causing of the crack being probably attributable to residual stress cracking as the J79/73/74 Flying Eagle reverse noted at the beginning of this section continued to be used for several more restrikes after it initially cracked.





**Figure 5**  
**1809 109/110 Crack.**

In a rather serendipitous turn of events, a private collector brought the 1809 109/108/110 obverse die to the 2000 ANA in Philadelphia. And, as can be seen in the images below, not only did the die crack across the die face, the split also continued down the side for nearly the entire length! It is thus somewhat of a minor miracle that it held together for the 110 striking.



**Figure 6**  
**1809 109/108/110 Obverse Die with Crack.**

There are several other probable candidates for residual stress cracking in the Bust series. One is the obverse of the 1836 B-4 quarter, illustrated below. This die starts out perfect and then quickly cracks, exhibiting four strong radial cracks.



Figure 7  
1836 B4 Quarter Cracked Obverse.

At the present, the authors suspect this is a *probable* example of residual stress cracking. However, we would need to establish that the dies were in use, removed (for whatever reason), and then placed back into service since suggesting residual stress cracking as a probable cause is entirely dependent on establishing the circumstances. Hopefully, CBQ specialists will be able to confirm or deny this as a cause.

### Some Final Words

The authors strongly advise against categorically stating that hydrogen embrittlement or residual stress cracking is the cause of any given cracks. The reason being that assigning these mechanisms as a defect cause requires definitive knowledge of the circumstances. That is why the authors only consider the 1809 obverse and 1838 reverse as “probable” even though we have fairly solid physical evidence in the form of the 1809 obverse die and the eye-witness account of the DuBois letter.

The real value is the understanding that these defect mechanisms do exist and that they are thus possible causes for cracking in addition to the more commonly understood cracking due the stress of hardening and classic fatigue cracking arising from long term use.

### References:

- 1) DuBois, William E., July 12, 1843 letter to Matthew Stickney, copy courtesy of David Stone, Heritage Auctions.
- 2) Herring, Daniel H., *Hydrogen Embrittlement*, Wire Forming Technology, Fall 2010, downloaded from <http://www.heat-treat-doctor.com>
- 3) Johnson, William H., *On some remarkable Changes produced in Iron and Steel by the Action of Hydrogen and Acids*, Proceedings of the Royal Society of London Vol 23, January 1875, downloaded from Google Books.





## **The Headline Read**

### **W. David Perkins, NLG**

The Headline read, "DOLLAR OF 1804 SELLS FOR \$2,000 / Famous United States Coin is Purchased by a Pacific Coast Collector. / ONLY SEVEN IN EXISTANCE / Rest of Issue, Lost at Sea, Were Sent to Pay off American Sailors in North Africa."

This is the headline in an old newspaper clipping, one of 10 clippings in a very old The Chase Manhattan Bank manila envelope from around the turn of the 20th Century. These clippings were accumulated over the years by Farran Zerbe. Zerbe was the second editor and publisher of the ANA's *THE NUMISMATIST* after the founder, Dr. George F. Heath of Monroe, Michigan died on June 18, 1888.

According to the ANA History, "On June 16, 1908, Dr. Heath suddenly died. Farran Zerbe, then president, assumed the task of editing and publishing *THE NUMISMATIST*, and soon purchased the publication from Heath's heirs. In 1911, through the generosity of W.C.C. Wilson of Montreal, Canada, *The Numismatist* was purchased from Zerbe and presented to the ANA. The magazine has been owned and published monthly by the Association since that time."

Zerbe sold his collection of over 50,000 coins along with his library to the Chase National Bank in 1928, and was curator of the collection until 1939.

I acquired a number of file folders containing Zerbe's 1804 Dollar Research from Mr. Alfred J. Ostheimer about 13 years ago. Mr. and Mrs. Ostheimer had an extensive collection of early U.S. silver dollars 1794-1803. Mrs. Ostheimer researched the early dollars, hoping to someday update the Bolender early dollar book (first published in 1950) with Milferd Bolender. Zerbe corresponded with leading dealers and collectors that owned 1804 Dollars.

Here is the content of the newspaper clipping, circa 1904:

Washington, April 80.-A United States dollar, now in its one hundredth year, recently began the long trip from Denver to Portland, Ore., after having lain in a Denver collection of coins for more that eighteen years. Though the dollar is about the size of those coined during the present year and contains about the same number of grains of silver, it brought in the neighborhood of \$5.35 per grain of pure silver in its combination, and all this because it has been in the one form for 100 years.

The dollar is one of the coinage of 1804, of which there are only seven known to be in existence. It was bought by the late J. V. Dexter at the Chapman sale of coins in 1885. At that time the coin had been but lately secured from a collection in Berlin, being the only one of the dollars that is known to have been in a foreign collection.

Mr. Dexter paid \$1,000 for the dollar, having to bid against several other collectors, the price being at that time the largest that had ever been paid for one of the coinage named. Since then one of the other coins has been sold for \$1,200,



a record that held good until H. G. Brown of Portland, Ore., paid \$2,000 for the coin to R. G. Parvin, who succeeded to the ownership of the Dexter collection. Mr. Parvin did not willingly part with the coin at that price, for he had held it as the keypiece [Sic.] of his numismatic collection.

About a year ago the story of the Parvin 1804 dollars was printed in papers throughout the country. As a result, Mr. Parvin has been receiving letters ever since concerning his collection of rare coins from all parts of the country. A Chicago man tried to buy the dollar, offering up to \$1,500, and failed. Then a man in St. Louis tried to get it for a collection to be exhibited at the World's Fair.

During these negotiations Mr. Parvin thought he had discovered the limit of bidding and that no man would go over \$1,500 in trying to get the coin. So, when he was asked to put a price upon it, he replied that he was not willing to dispose of it, but had set his price at \$2,000.

#### BROWN TELEGRAPHED.

Mr. Brown did not wait for the slow progress of the United States mail, but telegraphed to send on the dollar. After that telegrams came at the rate of one a day, and, while Mr. Parvin was reluctantly placing the dollar in a candy box and labeling it, there came another telegram to hurry up the dollar anyway and to send it "C. O. D." if there was no other way. So the dollar started west.

The scarcity of the dollars of the 1804 vintage is explained by an accident at sea. The larger part of the silver dollars of that year were struck off to pay United States soldiers and sailors doing duty in Tripoli, North Africa, and were shipped to that place. The vessel that carried them away from this country was never heard from again, so the entire cargo is supposed to rest somewhere upon the floor of the Atlantic Ocean.

Just seven copies of the dollar of that year are in existence, two lying in the mint at Philadelphia, and the others being in private collections. In 1858 some copies of the coin of 1804 were struck off, being known as "restrikes," but all but two of them were called in, the records show and destroyed. One copy of the "restrike" is in the mint at Philadelphia and the other is owned in England. No counterfeit of the 1804 dollar was ever known.

Said an amateur numismatist the other day: "I've been studying about coins for a long time, reading all the books and treatises on the subject I could lay my hands on, and enjoin it upon you, my friend, if you ever come across an 1804 silver dollar grapple it hard and fast. I can tell you, he said, "that one of them has a fictitious value of at least a thousand times its weight in gold, and the possessor

of one who is sordid enough to wish to sell it can get a princely sum for it. I find in the libraries sold evidence of the fact that the real, pure, unalloyed 1804 dollars are among the rarest coins in the universe-I mean, of course, United States coins. There were originally some less than 20,000 of them coined, and the few in existence to-day are in carefully guarded cabinets of well-to-do coin collectors.

As noted earlier, I've had this newspaper clipping and nine others for over a decade. In 2014, Mark Ferguson published his book, *"The Dollar of 1804 / The U.S. Mint's Hidden Secret,"* the story of the Dexter 1804 Dollar. Chapter 10 covers the early pedigree history of the Dexter Dollar. James Dexter passed away on May 23, 1999 in Colorado. Harriett Dexter Parvin, one of Dexter's two daughters, inherited one half of Dexter's estate. R. G. Parvin was Roland G. Parvin, went about selling the coin collection and the 1804 Dollar. Articles over the years stated the purchase price was as low as \$1,500 and as high as the \$2,000 reported in this clipping. Ferguson's research shows the actual purchase price as \$1,800. The reported \$2,000 purchase price in this clipping was of course beneficial to both buyer and seller!

Mr. Brown, the purchaser of the 1804 dollar, was H. G. Brown of Spokane, Washington, later of Portland, Oregon per Ferguson. Thus the 1804 Dollar went west (from Denver to Portland, as stated in the clipping). Can you imagine sending an 1804 Dollar "C. O. D." today!

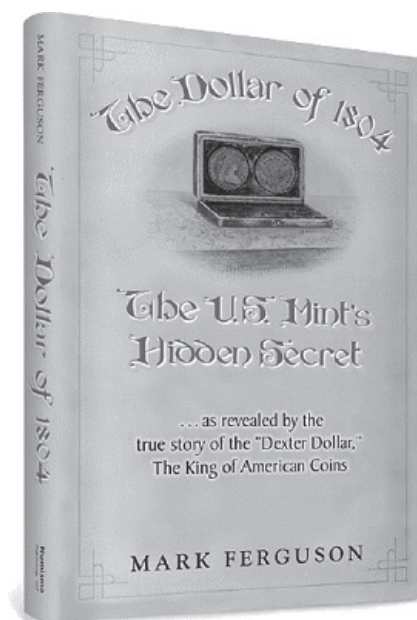
This 1804 Dollar will be offered by Stacks Bowers in April 17 as part of the last of the Pogue auction sales.



**Figure 1**  
**Obverse photo of Dexter 1804 Dollar. Photo courtesy of PCGS.**



**Figure 2**  
**Reverse photo of Dexter 1804 Dollar. Photo courtesy of PCGS.**



**Figure 3**  
**Photo of the cover of Mark Ferguson's book on the Dexter 1804 Dollar.**  
**Photo courtesy of Mark Ferguson.**

